

ABSTRACT

A tire building drum has a center section (720) and two end sections (722,724). Each end
 section is provided with an expandable bead lock assembly (726) . The center section is
 5 preferably expandable. The expandable bead lock assembly comprises a carrier ring (CR) and a
 plurality of elongate links (K) extending between the carrier ring (CR) and a plurality of radially-
 expandable segments (S). When the carrier ring moves inward (towards the center section), the
 radially-expandable segments (S) move radially outward, urging a plurality of axially extending,
 circumferentially spaced-apart finger segments (F) outward from a collapsed position to an
 10 expanded position, and at least one position therebetween. In an embodiment of the invention, the
 bead lock assembly comprises a cylinder and two pistons (P1, P2) disposed within the cylinder.
 The pistons are free to move axially within the cylinder, in response to pneumatic pressure. The
 first piston (P1) is constrained from moving axially inward by rods (R1P1,R2P1,R3P1). The
 second piston (P2) is connected by rods (R1P2,R2P2,R3P2) to the carrier ring (CR).
 15 Pressurized air supplied through hoses (H1,H2,H3) and passageways in the cylinder (73) control
 the movement of the pistons (P1,P2) so that the beach lock assembly can be partially-expanded,
 fully-expanded, and retracted, unexpanded position.

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